

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 2, 8, 9, 11, 32 and 33 without prejudice or disclaimer and AMEND the claims in accordance with the following:

1. (CURRENTLY AMENDED) A variable capacity rotary compressor, comprising:
a casing to form an external appearance of the variable capacity rotary compressor;
a drive unit to generate a rotating force;
a rotating shaft connected at a first end thereof to the drive unit, and rotated by the rotating force transmitted from the drive unit to the rotating shaft;
a compressing cylinder through which a second end of the rotating shaft passes;
a compressing chamber defined in the compressing cylinder to compress refrigerant therein, with a first refrigerant inlet port provided at a predetermined portion of the compressing chamber to introduce the refrigerant into the compressing chamber; and
a capacity control unit comprising the first refrigerant inlet port and ~~to controlling~~ an operation of the variable capacity rotary compressor so as to allow the rotary compressor to perform one of a normal-mode operation wherein the first refrigerant inlet port is maintained at an open state thereof to continuously introduce the refrigerant into the compressing chamber, and of a variable capacity-mode operation wherein the first refrigerant inlet port is periodically opened and closed so as to periodically stop the introduction of the refrigerant into the compression chamber,
wherein the capacity control unit further comprises a capacity control member installed to rotate along with the rotating shaft while moving axially along the rotating shaft to allow the rotary compressor to perform one of the normal-mode operation and of the variable capacity-mode operation.
2. (CANCELLED)
3. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim ~~2~~1, wherein the capacity control unit further comprises:

a capacity control cylinder arranged in the variable capacity rotary compressor while axially aligning with the compressing cylinder;

a capacity control chamber defined in the capacity control cylinder so as to receive the capacity control member therein, with a second refrigerant inlet port provided at a predetermined portion of the capacity control chamber to introduce the refrigerant into the capacity control chamber; and

a partition plate to partition the capacity control chamber from the compressing chamber, with the first refrigerant inlet port provided at a predetermined portion of the partition plate.

4. (ORIGINAL) The variable capacity rotary compressor according to claim 3, wherein the capacity control member has a cylindrical shape, and comprises:

a communicating depression formed along a circumferential surface of the capacity control member within a predetermined range to allow the first and second refrigerant inlet ports to be periodically opened and communicate with each other during the variable capacity-mode operation.

5. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 21, further comprising:

a three-way valve to feed one of the refrigerant under a high pressure and the refrigerant under a low pressure into the capacity control chamber to allow the capacity control member to axially move in either a first direction or a second direction within the capacity control chamber in accordance with the refrigerant being feed into the capacity control chamber under the high pressure or the low pressure.

6. (ORIGINAL) The variable capacity rotary compressor according to claim 5, further comprising:

a refrigerant outlet pipe connected to the casing so as to discharge the compressed refrigerant from the casing to an outside; and

a refrigerant inlet pipe connected to the second refrigerant inlet port so as to introduce the refrigerant to be compressed into the casing;

a high-pressure refrigerant supply pipe branching from the refrigerant outlet pipe and connected to the three-way valve ;

a low-pressure refrigerant supply pipe branching from the refrigerant inlet pipe and connected to the three-way valve; and

a capacity control pipe extending to the capacity control chamber and connected to the three-way valve

wherein the three-way valve feeds one of the refrigerant under the high pressure fed through the high-pressure refrigerant supply pipe and the refrigerant under the low pressure fed through the low-pressure refrigerant supply pipe into the capacity control chamber through the capacity control pipe to allow the capacity control member to axially move within the capacity control chamber.

7. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 21, further comprising:

a guide groove;

a shaft hole formed in the capacity control member so as to allow the rotating shaft to pass through the capacity control member, with the guide groove axially formed along an inner surface of the shaft hole so as to transmit the rotating force of the rotating shaft to the capacity control member; and

a guide rib axially formed along an outer surface of the rotating shaft so as to engage with the guide groove of the capacity control member.

8. (CANCELLED)

9. (CANCELLED)

10. (CURRENTLY AMENDED) A variable capacity rotary compressor, comprising:
a compression unit to compress refrigerant therein and including one inlet port provided thereat to introduce the refrigerant into the compression unit, the compression unit comprising a rotating shaft rotating in the compression unit and allowing a compression of the refrigerant; and

a capacity control unit comprising the inlet port at a portion thereof and to operate operating in a plurality of operational modes such that, in a first of the operational modes, the one inlet port is maintained in an open state, and, in a second of the operational modes, the one inlet port is alternately opened and closed according to a variable capacity of the variable capacity rotary compressor,

wherein the capacity control unit further comprises a capacity control member rotating along with the rotating shaft while moving axially along the rotating shaft to allow the variable capacity rotary compressor to operate in at least the first operational mode or second operational

mode in accordance with the refrigerant being feed into the capacity control chamber unit at a selected pressure level.

11. (CANCELLED)

12. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim ~~44~~10, wherein the capacity control unit further comprises:

a capacity control chamber disposed to align with the compression unit so as to receive the capacity control member therein, with a further inlet port provided at a predetermined portion of the capacity control chamber to introduce the refrigerant into the capacity control chamber; and

a partition to partition the capacity control chamber from the compression unit, with the one inlet port provided at a predetermined portion of the partition.

13. (ORIGINAL) The variable capacity rotary compressor according to claim 12, wherein the capacity control member has a cylindrical shape, and comprises:

a depression formed along a surface of the capacity control member within a predetermined range to allow the one inlet port and the further inlet port to periodically open and communicate with each other during the second operational mode.

14. (ORIGINAL) The variable capacity rotary compressor according to claim 12, further comprising:

a three-way valve to introduce the refrigerant under one of a high pressure and a low pressure into the capacity control chamber to allow the capacity control member to axially move within the capacity control chamber in accordance with the refrigerant being feed into the capacity control chamber under the high pressure or the low pressure.

15. (ORIGINAL) The variable capacity rotary compressor according to claim 14, further comprising:

an outlet pipe to discharge the compressed refrigerant to an outside; and

an inlet pipe connected to the further inlet port so as to introduce the refrigerant to be compressed into the compression unit;

a high-pressure supply pipe branching from the outlet pipe and connected to the three-way valve;

a low-pressure refrigerant supply pipe branching from the inlet pipe and connected to the three-way valve; and

a capacity control pipe extending to the capacity control chamber and connected to the three-way valve, wherein the three-way valve feeds the refrigerant under one of the high pressure from the high-pressure supply pipe and the low pressure from the low-pressure supply pipe into the capacity control chamber through the capacity control pipe to allow the capacity control member to axially move within the capacity control chamber.

16. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim ~~44~~10, further comprising:

a guide groove;

a shaft hole formed in the capacity control member so as to allow the rotating shaft to pass through the capacity control member, with the guide groove axially formed along an inner surface of the shaft hole so as to transmit a rotating force from the rotating shaft to the capacity control member; and

a guide rib axially formed along an outer surface of the rotating shaft so as to engage with the guide groove of the capacity control member.

17. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 10, wherein the ~~compressing~~compression unit further comprises:

a compressing cylinder defining a compressing chamber therein to compress the refrigerant;

~~a~~the rotating shaft is rotatably disposed in the compressing chamber with an eccentric part to allow the compression of the refrigerant;

a roller fitted over the eccentric part of the rotating shaft, the roller being eccentrically rotated in the compressing chamber by the rotating shaft and compressing the refrigerant in the compressing chamber, and

a vane disposed at an inner surface of the compressing cylinder to divide the compressing chamber into two chamber parts.

18. (ORIGINAL) The variable capacity rotary compressor according to claim 17, wherein the two chamber parts comprises:

a suction chamber part into which the refrigerant is sucked and a compressing chamber part in which the refrigerant is compressed.

19. (ORIGINAL) The variable capacity rotary compressor according to claim 10, wherein, in the second of the plural operational modes, the one inlet port is periodically opened and closed so as to periodically stop an introduction of the refrigerant into the compressing unit.

20. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 10, wherein:

~~the compression unit comprises:~~

~~a rotating shaft rotating in the compression unit and allowing a compression of the refrigerant;~~

~~the capacity control unit comprises:~~

~~a~~the capacity control member is movably fitted over the rotating shaft to axially move along a length of the rotating shaft according to ~~a~~the pressure level of the refrigerant introduced into the capacity control unit.

21. (ORIGINAL) The variable capacity rotary compressor according to claim 20, wherein the capacity control member is both rotated and axially moved within the capacity control unit in response to the refrigerant under either a first pressure level or a second pressure level, different from the first pressure level, being introduced into the capacity control unit.

22. (ORIGINAL) The variable capacity rotary compressor according to claim 21, one of the plural operational modes is selectable according to one of the first and second pressure levels introduced into the capacity control unit.

23. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 12, wherein the capacity control member has a cylindrical shape and is ~~horizontally~~ stepped at a predetermined portion thereof.

24. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 23, wherein the ~~horizontally~~-stepped portion of the capacity control member provides a flow path formed along a circumferential surface of the capacity control member to selectively open the one inlet port and the further inlet port and to allow the one inlet port and the further inlet port to communicate with each other, in accordance with a rotation angle of the capacity control member.

25. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 23, wherein the ~~horizontally~~-stepped portion of the capacity control member provides a flow path defined thereby to allow the one inlet port and the further inlet port to communicate with each other, in accordance with a rotation angle of the capacity control member.

26. (ORIGINAL) The variable capacity rotary compressor according to claim 25, wherein the stepped portion of the capacity control member provides is formed along a circumferential surface within an angular range of 180°.

27. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 26, wherein a first amount of the refrigerant introduced into the ~~compressing~~-compression unit during the second operational mode, is reduced compared to a second amount of the refrigerant introduced into the ~~compressing~~-compression unit during the first operational mode.

28. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 27, wherein the second amount of the refrigerant introduced into the ~~compressing~~-compression unit is substantially half that of the first amount of the refrigerant introduced into the ~~compressing~~-compression unit.

29. (ORIGINAL) The variable capacity rotary compressor according to claim 21, further comprising:

a partition plate disposed between the capacity control unit and the compression unit to partition the capacity control unit and the compression unit,

wherein the capacity control member is rotated at a position spaced apart from the partition plate by a predetermined gap, when the refrigerant under the first pressure level is introduced into the capacity control unit, and the capacity control member is axially moved toward the partition plate to be adjacent to and contacting with the partition plate, when the refrigerant under the second pressure level is introduced into the capacity control unit.

30. (CURRENTLY AMENDED) The variable capacity rotary compressor according to claim 29, further comprising:

a further inlet port provided at a predetermined portion of the capacity control unit to introduce the refrigerant into the capacity control unit; and

wherein, when the capacity control member is spaced apart from the partition plate by a predetermined gap, the one inlet port and the further inlet port communicate with each other through the predetermined gap between the capacity control member and the partition plate such that the refrigerant is continuously fed into the ~~compressing~~compression unit.

31. (ORIGINAL) The variable capacity rotary compressor according to claim 29, further comprising:

a further inlet port provided at a predetermined portion of the capacity control unit to introduce the refrigerant into the capacity control unit; and

wherein, when the capacity control member is adjacent to and contacting with the partition plate the one inlet port and the further inlet port selectively communicate with each other according to a rotation angle of the capacity control member.

32. (CANCELLED)

33. (CANCELLED)